AMENDMENTS TO THE CLAIMS

1. (Original) An electrolyte membrane comprising a porous substrate, wherein pores of the substrate are filled with a first polymer having proton conductivity, and the porous substrate is comprised of a second polymer which is at least one selected from the group consisting of polyimides and polyamides.

2. (Original) The electrolyte membrane according to claim 1, wherein the porous substrate is comprised of at least one selected from aromatic polyimides.

3. (Original) The electrolyte membrane according to claim 1, wherein the porous substrate is comprised of at least one selected from aromatic polyamides.

4. (Currently amended) The electrolyte membrane according to ~~any one of claims 1 to 3~~ claim 1, wherein the porous substrate has an average pore diameter: 0.01 to 1 μm; a porosity: 20 to 80%, and a thickness: 5 to 300 μm.

5. (Currently amended) The electrolyte membrane according to ~~any one of claims 1 to 4~~ claim 1, wherein the porous substrate has a heat resistant temperature of 200°C or higher and a thermal shrinkage ratio of ±1% or less in case of thermal treatment at 105°C for 8 hours.

6. (Currently amended) The electrolyte membrane according to ~~any one of claims 1 to 5~~ claim 1, wherein the porous substrate has a network structure which is composed of polymer phase and void phase in inside thereof and forming microscopic continuous holes, and the porous substrate has a porous structure in both surfaces.

7. (Currently amended) The electrolyte membrane according to ~~any one of claims 1 to 6~~ claim 1, wherein one end of the first polymer is bound to the inner surface of the pores of the substrate.

8. (Currently amended) The electrolyte membrane according to ~~any one of claims 1 to 7~~ claim 1, wherein the pores of the substrate are further filled with a third polymer having proton conductivity.

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9. (Original) An electrolyte membrane comprising a porous substrate, wherein pores of the substrate are filled with a first polymer having proton conductivity, the porous substrate is comprised of a second polymer which is at least one selected from the group consisting of polyimides and polyamides, and the porous substrate has a ratio of change in surface area of about 1% or less between the dry state and the wet state at 25°C.

10. (Original) The electrolyte membrane according to claim 9, wherein the electrolyte membrane has a proton conductivity of not lower than 0.001 S/cm and not higher than 10.0 S/cm at 25°C and 100% humidity.

11. (Currently amended) A fuel cell comprising the electrolyte membrane according to ~~any one of claims 1 to 10~~ claim 1.

12. (Currently amended) A solid polymer fuel cell comprising the electrolyte membrane according to ~~any one of claims 1 to 10~~ claim 1.

13. (Currently amended) A direct methanol solid polymer fuel cell comprising the electrolyte membrane according to ~~any one of claims 1 to 10~~ claim 1.

14. (Original) A method for producing an electrolyte membrane which comprises a porous polyimide membrane filled with an electrolytic substance, wherein the electrolytic substance is a monomer composing a polymer having proton conductivity; and the method has a step of filling the monomer into pores of the membrane, and heating the monomer to polymerize the monomer.

15. (Original) The method according to claim 14, wherein after the step of heating the monomer to polymerize the monomer, the method further repeats the steps of filling and heating at least once, thereby filling ratio of a filling material being controlled.

16. (Original) The method according to claim 14 comprising a combination of the step of heating the monomer to polymerize, and one step selected from the following (X-1) to (X-4) steps or combinations of two steps, or three, or all of these steps, thereby filling the pores of the membrane with the electrolytic substance; and/or after the step of filling the

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pores of the membrane with electrolytic substance, and following (Y-1) step and/or (Y-2) step:

(X-1) a step of making the porous membrane hydrophilic and immersing the porous membrane in a monomer or its solution;

(X-2) a step of adding a surfactant to a monomer or its solution to produce an immersion solution and immersing the porous membrane in the immersion solution;

(X-3) a step of reducing pressure in the state that the porous membrane is immersed in a monomer or its solution;

(X-4) a step of radiating ultrasonic wave in the state that the porous membrane is immersed in a monomer or its solution; and

(Y-1) a step of bringing a porous substrate for absorbing the electrolytic substance into contact with both surfaces of the porous membrane; and

(Y-2) a step of removing the electrolytic substance adhering to both surfaces of the porous membrane by a smooth material.

17. (Original) A method for producing an electrolyte membrane which comprises a porous polyimide membrane filled with an electrolytic substance, wherein the electrolytic substance is a monomer composing a polymer having proton conductivity, and the method comprises a step of adding a surfactant to the monomer or its solution to produce an immersion solution; a step of heating the monomer to polymerize the monomer.

18. (Currently amended) The method according to ~~any one of claims 14 to 17~~ claim 14, wherein the porous membrane is a material which is not substantially swollen by methanol or water.

19. (Currently amended) The method according to ~~any one of claims 14 to 18~~ claim 14, wherein a radical polymerization initiator is further contained in the monomer or the solution, in the step of adding the surfactant.

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20. (Currently amended) The method according to ~~any one of claims 14 to 19~~ claim 14, wherein the electrolytic substance filled in the pores has proton conductivity and is provided with a cross-linked structure by the step of heating the monomer to polymerize.

21. (Currently amended) The method according to ~~any one of claims 14 to 20~~ claim 14, wherein the electrolytic substance filled in the pores has proton conductivity and is chemically bound to the interface of the porous polyimide membrane by the step of heating the monomer to polymerize.

22. (Currently amended) The method according to ~~any one of claims 14 to 21~~ claim 14, wherein the electrolytic substance forms an electrolyte membrane having pores filled with the proton conductive polymer.

23. (Currently amended) The method according to ~~any one of claims 14 to 22~~ claim 14, wherein the polyimide contains 3,3',4,4'-biphenyltetracarboxylic acid dianhydride as a tetracarboxylic acid component, and oxydianiline as a diamine component, respectively.

24. (Original) An electrolyte membrane for a fuel cell having no lower than 0.001 S/cm and no higher than 10.0 S/cm of a proton conductivity at 25°C in 100% humidity; no lower than 0.01 $m^2h/kg\mu m$ and no higher than 10.0 $m^2h/kg\mu m$ of a reciprocal number of methanol permeability at 25°C; and no higher than 1% of a ratio of change in surface area between dry state and wet state at 25°C.

25. (Original) The electrolyte membrane for a fuel cell according to claim 24, wherein the polyimide contains 3,3',4,4'-biphenyltetracarboxylic acid dianhydride as a tetracarboxylic acid component, and oxydianiline as a diamine component, respectively.

26. (Currently amended) An electrolyte membrane-electrode assembly comprising the electrolyte membrane for a fuel cell according to claim 24 [[or 25]].

27. (Original) A fuel cell comprising the electrolyte membrane-electrode assembly according to claim 26.

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